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| 10/805,307 | 03/22/2004 | Fumiharu Nakayama | 016907-1632 | 9166 |
| 23428 7590 03/31/2010 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/805,307

Applicant(s)

NAKAYAMA, FUMIHARU

Examiner

LENNIN R. RODRIGUEZ

Art Unit

2625

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 5-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Applicant's newly added limitation "the Bluetooth antenna is disposed between two antennas, with a first predetermined distance from a first of two antennas and a second predetermined distance from a second of the two antennas," raise new issues that require new search and consideration from the examiner.
2. Rejection made under 35 U.S.C. 112 first paragraph has been withdrawn.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/26/2010 has been entered.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 17 and 18 appear to be claiming a range for the distance between positions of the two antennas however, the reference being made is "uppermost part of the reversing automatic document feeder and the uppermost part of the reversing automatic document feeder", thus rendering the claim indefinite. For the purposes of examination, examiner has interpreted the claim as stating that both uppermost part of the antennas are provided at a position higher than the reversing automatic document feeder.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (JP 2002-086854, all citations from the machine translation) in view of Lueker (US 6,134,105), Tamagaki et al. (US 6,040,924), Talwar (US 5,117,505), Ueno (JP 2002-373062, English abstract has been used for all citations) and Masaki et al. (US 6,642,892).

(1) regarding claim 1:

Nakamura '854 discloses an image forming apparatus (1 in Fig. 1) comprising:

a main body of the image forming apparatus (It is evident in Fig. 1 that the printing apparatus has a body);

a wireless LAN module that is provided inside a rear surface of the main body of the image forming apparatus (Abstract, SOLUTION, lines 3-7, paragraph [0014], lines 1-2 and 112, in Fig. 1, where the control circuit contains the wireless LAN and is located at the back of the printer as could be referenced by looking at Fig 1 and looking at the control panel 113, generally at the front of a printer so users can have easy access to it);

an antenna that is provided on the rear surface of the main body of the image forming apparatus (111 in Fig. 1, where the antenna is located on the back of the printer if you are looking at it from the right side of the figure where the control panel 113 is); and

a cable that connects the wireless LAN module and the antenna with a shortest distance (as can be shown in Fig. 1, antenna 111 and control circuit 112 are close together, it is inherent that a cable should be use for connecting an antenna with something else, in this case a wireless LAN, since an antenna by itself does not performs any functionality and by looking at the closeness of the two components it is apparent for the examiner that the shortest distance of cable should be used, because it would be unnecessary the use of extra cable for such a short connection), and

wherein an uppermost part of the antenna is provided at a position higher than a position that is lower by a third predetermined distance than an uppermost part of the reversing automatic document feeder (Drawing 2, where by virtue of the drawing the antenna is provided at a position higher than for example ground 91 (being used as the predetermined position lower than the top of the automatic feeder)).

Nakamura '854 discloses all the subject matter as described above except for the image forming apparatus having two antennas.

However, Lueker '105 teaches the image forming apparatus having two antennas (21 in Fig. 1 and column 3, line 65 through column 4, line 1, where the printer has three antennas attached (two included) for data communication).

Having a system of Nakamura '854 reference and then given the well-established teaching of Lueker '105 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854 to include the image forming apparatus having two antennas as taught by Lueker '105 because it would be desirable to have available a single, easily transported command unit which provides a fully functional, easily deployed and immediately operable communications and information transfer capability to users in remote locations. This command center would replicate and provide the functionality of a home agency information and computing system to a user at a remote site (column 1, lines 57-63).

Nakamura '854 and Lueker '105 disclose all the subject matter as described above except a reversing automatic document feeder that is provided on an upper part of the main body of the image forming apparatus;

However, Tamagaki '924 teaches a reversing automatic document feeder (3 in Fig. 1) that is provided on an upper part of the main body of the image forming apparatus (as can be seen from Fig. 1 the feeder is in the upper part of the main body 1);

Having a system of Nakamura '854 and Lueker '105 and then given the well-established teaching of Tamagaki '924 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854 and Lueker '105 to include a reversing automatic document feeder that is provided on an upper part of the main body of the image forming apparatus as taught by Tamagaki '924 because with this automatic feeder the scanning of documents becomes easier and faster than doing it manually, one by one, and also giving the advantage of double side scanning, thus making it user-friendlier.

Nakamura '854, Lueker '105 and Tamagaki '924 disclose all the subject matter as described above except wherein the two antennas are disposed at positions where a first of the two antennas compensates for degradation in radiation characteristics of a second of the two antennas caused by the reversing automatic document feeder.

However, Talwar '505 teaches wherein the two antennas are disposed at positions where a first of the two antennas compensates for degradation in radiation characteristics of a second of the two antennas caused by an apparatus (column 11, lines 40-50, where by comparison of signals of each antenna the interference signal is calculated and cancelled, even though in this case it is not specifically an automatic feeder, it would be apparent for a person of ordinary skill in the art that the noise cancellation for any apparatus, would work the same way with an automatic feeder).

Having a system of Nakamura '854, Lueker '105 and Tamagaki '924 and then given the well-established teaching of Talwar '505 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

modify the image forming apparatus of Nakamura '854, Lueker '105 and Tamagaki '924 to include wherein the two antennas are disposed at positions where a first of the two antennas compensates for degradation in radiation characteristics of a second of the two antennas caused by an apparatus as taught by Talwar '505 because it would be desirable to have an interference cancellation system which will minimize noise degradation of a receiver (column 3, lines 38-42).

Nakamura '854, Lueker '105, Tamagaki '924 and Talwar '505 disclose all the subject matter as described above except an antenna for Bluetooth,

However, Ueno '062 teaches an antenna for Bluetooth ("Solution", lines 1-3, where a Bluetooth antenna is provided to a printer),

Having a system of Nakamura '854, Lueker '105, Tamagaki '924 and Talwar '505 and then given the well-established teaching of Ueno '062 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105, Tamagaki '924 and Talwar '505 to include an antenna for Bluetooth, as taught by Ueno '062 because it will increase the capacity of the printer apparatus as to allow a third way of wireless communication via a Bluetooth antenna, thus improving usability of the system.

Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 disclose all the subject matter as described above except the Bluetooth antenna is disposed between two antennas, with a first predetermined distance from a first of two antennas and a second predetermined distance from a second of the two antennas,

However, Masaki '892 teaches the Bluetooth antenna is disposed between two antennas (2C in Fig. 4, it clearly shows how it is between antenna 2 A and antenna 2B), with a first predetermined distance from a first of two antennas and a second predetermined distance from a second of the two antennas (looking at Fig. 4, it is only noticeable that the antenna is positioned at a predetermined distance (the middle of the distance of the two antennas)),

Having a system of Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 and then given the well-established teaching of Masaki '892 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 to include the Bluetooth antenna is disposed between two antennas, with a first predetermined distance from a first of two antennas and a second predetermined distance from a second of the two antennas, as taught by Masaki '892 because it will increase the capacity of the printer apparatus as to allow a third way of wireless communication via a Bluetooth antenna, thus improving usability of the system.

(2) regarding claim 2:

Nakamura '854 further discloses wherein the wireless LAN module is provided on a control board that is disposed inside the rear surface of the main body of the image forming apparatus (Abstract, SOLUTION, lines 3-7, paragraph [0014], lines 1-2 and 112, in Fig. 1, where the control circuit contains the wireless LAN and is located at the

back of the printer as could be referenced by looking at Fig 1 and looking at the control panel 113, generally at the front of a printer so users can have easy access to it).

(3) regarding claim 13:

Nakamura '854 further discloses wherein the rear surface of the main body is perpendicular to a ground surface upon which the image forming apparatus sits (111 in Drawing 2, as can be seen by the position of the antenna and the back face 110 of printer 1, it is clearly perpendicular to surface 91).

(4) regarding claim 3:

Nakamura '854, Lueker '105 and Tamagaki '924 disclose all the subject matter as described above except wherein the two antennas respectively comprise a main antenna and a sub-antenna.

However, Talwar '505 teaches wherein the two antennas respectively comprise a main antenna (60 in Fig. 2) and a sub-antenna (66 in Fig. 2).

Having a system of Nakamura '854, Lueker '105 and Tamagaki '924 and then given the well-established teaching of Talwar '505 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105 and Tamagaki '924 to include wherein the two antennas respectively comprise a main antenna and a sub-antenna as taught by Talwar '505 because it would be desirable to have an interference cancellation system which will minimize noise degradation of a receiver (column 3, lines 38-42).

(5) regarding claim 14:

Nakamura '854, Lueker '105 and Tamagaki '924 disclose all the subject matter as described above except wherein the radiation characteristics are horizontal radiation characteristics.

However, Talwar '505 teaches wherein the radiation characteristics are horizontal radiation characteristics (as it is apparent in the drawings, Figs. 2-6, the two antennas are situated at the same level, thus picking up the signals at the same level, being interpreted as horizontal).

Having a system of Nakamura '854, Lueker '105 and Tamagaki '924 and then given the well-established teaching of Talwar '505 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105 and Tamagaki '924 to include wherein the radiation characteristics are horizontal radiation characteristics as taught by Talwar '505 because it would be desirable to have an interference cancellation system which will minimize noise degradation of a receiver (column 3, lines 38-42).

(6) regarding claim 15:

Nakamura '854, Lueker '105 and Tamagaki '924 disclose all the subject matter as described above except wherein the two antennas are respectively arranged on left and right sides of the rear surface of the main body of the image forming apparatus.

However, Talwar '505 teaches wherein the two antennas are respectively arranged on left and right sides of the rear surface of the main body of the image forming apparatus (as it is apparent in the drawings, Figs. 2-6, the two antennas are

situated at the same level, next to each other, so one is left (66) and the other right (60)).

Having a system of Nakamura '854, Lueker '105 and Tamagaki '924 and then given the well-established teaching of Talwar '505 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105 and Tamagaki '924 to include wherein the two antennas are respectively arranged on left and right sides of the rear surface of the main body of the image forming apparatus as taught by Talwar '505 because it would be desirable to have an interference cancellation system which will minimize noise degradation of a receiver (column 3, lines 38-42).

(7) regarding claim 16:

Nakamura '854, Lueker '105, Tamagaki '924 and Talwar '505 disclose all the subject matter as described above except wherein the third predetermined distance is 1 cm.

However, common sense tell us that the third predetermined distance could be any distance lower than the top of the automatic feeder, thus wherein the predetermined distance is 1 cm could reasonably be possible since a distance below the top of the automatic feeder could go from 0.1cm to the floor, thus an ordinary skill in the art would have chosen for example 1 cm.

Having a system of Nakamura '854, Lueker '105, Tamagaki '924 and Talwar '505 reference and then given the well-established teaching of common sense, it would have been obvious to one having ordinary skill in the art at the time the invention was made

to modify the image forming apparatus of Nakamura '854 to include wherein the predetermined distance is 1 cm as taught by common sense because the user would have a specific preference of distance that an antenna could not be installed under, thus allowing for user satisfaction and improved shape.

(8) regarding claims 17 and 18:

Nakamura '854 further discloses wherein the uppermost part of the antenna is provided at a position higher than the uppermost part of the reversing automatic document feeder (Nakamura '854 shows that an antenna 111 is positioned at the back of the printer and above a position that is higher than a predetermined lower position (Drawing 2)).

(9) regarding claim 19:

Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 disclose all the subject matter as described above except wherein the antenna for Bluetooth is disposed with a distance of 200 mm or more from the first of the two antennas and with a distance of 200 mm or more from the second of the two antennas.

However, Masaki '892 teaches wherein the antenna for Bluetooth is disposed with a distance from the first of the two antennas and with a distance from the second of the two antennas (looking at Fig. 4, it is only noticeable that the antenna is positioned at a predetermined distance (the middle of the distance of the two antennas)).

(Design Choice)

Even though Masaki '892 does not specifically teaches the Bluetooth antenna disposed with a distance of 200 mm or more from the two antennas, Masaki '892 does

teach having the Bluetooth antenna in a central position between antennas 2A and 2B, which are apart 150mm, thus making the Bluetooth antenna being at 75mm of the two antennas. At the time the invention was made it would be obvious to change the distance at which the antennas are located given the space of a bigger apparatus surface, so it will make the Bluetooth antenna spaced by 200mm of the other two antennas.

Having a system of Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 and then given the well-established teaching of Masaki '892 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505 and Ueno '062 to include wherein the antenna for Bluetooth is disposed with a distance of 200 mm or more from the first of the two antennas and with a distance of 200 mm or more from the second of the two antennas as taught by Masaki '892 because it will increase the capacity of the printer apparatus as to allow a third way of wireless communication via a Bluetooth antenna, thus improving usability of the system.

8. Claims 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (JP 2002-086854), Lueker (US 6,134,105), Tamagaki et al. (US 6,040,924), Talwar (US 5,117,505), Ueno (JP 2002-373062, English abstract has been used for all citations) and Masaki et al. (US 6,642,892) in view of Lynch et al. (US 6,069,587).

(1) regarding claim 4:

Nakamura '854 discloses all the subject matter as described above except wherein the two antennas each comprise a dual-band antenna.

However, Lueker '105 teaches the image forming apparatus having two antennas (21 in Fig. 1 and column 3, line 65 through column 4, line 1, where the printer has three antennas attached (two included) for data communication).

Having a system of Nakamura '854 reference and then given the well-established teaching of Lueker '105 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Nakamura '854 to include the image forming apparatus having two antennas as taught by Lueker '105 because it would be desirable to have available a single, easily transported command unit which provides a fully functional, easily deployed and immediately operable communications and information transfer capability to users in remote locations. This command center would replicate and provide the functionality of a home agency information and computing system to a user at a remote site (column 1, lines 57-63).

Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505, Ueno '062 and Masaki '892 disclose all the subject matter as described above except wherein the two antennas each comprise a dual-band antenna.

However, Lynch '587 teaches wherein the two antennas each comprise a dual-band antenna (10 in Fig. 1, column 3, lines 41-56).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made wherein the two antennas each comprise a dual-band antenna as

taught by Lynch '587 in the system of Nakamura '854, Lueker '105, Tamagaki '924, Talwar '505, Ueno '062 and Masaki '892. With this, when the MEM switches are open, electrical isolation is established between the antenna segments, thereby allowing the antenna to operate in one frequency range without interference from the other frequency ranges. Accordingly, the MEM switches couple additional segments to the antenna, thereby allowing the antenna to operate in different frequency ranges (column 2, lines 22-28).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LENNIN R. RODRIGUEZ whose telephone number is (571)270-1678. The examiner can normally be reached on Monday - Thursday 7:30am - 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (571) 272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lennin R Rodriguez/
Examiner, Art Unit 2625

/Mark K Zimmerman/
Supervisory Patent Examiner, Art Unit 2625